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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,448	09/30/2003	Laxmi P. Parida	YOR920030199US1(590.110)	7560
35195 7590 05/09/2007 FERENCE & ASSOCIATES LLC 409 BROAD STREET PITTSBURGH, PA 15143			EXAMINER TRAN, MAI T	
			ART UNIT 2129	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/676,448	Applicant(s) PARIDA ET AL.	
	Examiner Mai T. Tran	Art Unit 2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on December 6, 2006 has been entered.

Claims 1, 5, and 9 have been amended. No new claims have been added. Claims 1-9 remain pending in the application and which have been fully considered by the examiner.

SPECIFICATION

The disclosure is objected to because of the following informalities:

- ❖ On page 5, line 15: "classifier and Step S40 is generally considered to be cross-validation". Classifier is spelled incorrectly.
- ❖ On page 6, line 4: "that are known to below to a particular class or classification". The word "below" using here does not make sense.
- ❖ On page 6, line 13: "the defintion of "best define""Q". Defintion is spelled incorrectly.

Appropriate correction is required.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. Applicants are suggested to change the title to: "Object classification using an optimized Boolean expression."

CLAIM REJECTIONS - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-9 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Claims directed to nothing more than abstract ideas (e.g. mathematical algorithms, software per se), natural phenomena, and laws of nature are not eligible for patent protection. While abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas, natural phenomena, and laws of nature to perform **a real-world function** may well be (MPEP, 2106).

In the present case, the claimed invention is not eligible for patent protection because it has not been limited to a substantial practical application of a 35 U.S.C. 101 judicial exception. A mere abstraction is useless in a real world situation.

The claimed invention must be for a practical application by:

1. transforming (physical thing) or
2. having the FINAL RESULT (not the steps) achieve or produce a useful (specific, substantial, AND credible) concrete (substantially repeatable/non-unpredictable), AND tangible (real world/non-abstract) result.

Claims that recite a computer that solely calculates a mathematical formula are not statutory. In the present case, independent claims 1, 5, and 9 are directed to a system, a method, and a program storage device for classifying objects comprising: “an arrangement for formulating a query to identify objects having properties of interest; an arrangement for selecting properties of the objects to compare with object properties included in the query; and an arrangement for determining if based on the selected properties if object belongs in the query; wherein the formulation of the query takes into account the desired form of output and the properties an object returned should possess.” An invention that is a combination of the above-recited steps has no specific purpose or use.

The courts have also held that a claim may not preempt ideas, laws of nature or natural phenomena. The concern over preemption was expressed as early as 1852. See Le Roy v. Tatham, 55 U.S. (14 How.) 156, 175 (1852) (“A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.”); Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 132, 76 USPQ 280, 282 (1948).

Accordingly, one may not patent every “substantial practical application” of an idea, law of nature or natural phenomena because such a patent “in practical effect would be a patent on the [idea, law of nature or natural phenomena] itself.” “Here the “process” claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure-binary conversion. The end use may (1) vary from the operation of a train to verification of drivers’ licenses to researching the law books for precedents and (2) be performed through any existing machinery

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or future-devised machinery or without any apparatus.” Gottschalk v. Benson, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).

The invention as claimed will preempt all practical applications of objects classification. The invention could be for any number of many practical applications which it preempts, such as the classification of speech, the classification of peak phone usage trends, the classification of sonar data, the classification of video, the classification of progression of a chemical reaction, the classification of radar signals, the classification of music, or the classification of ANYTHING else that could be classified based on their properties. As such, it preempts all practical applications of objects classification.

Any claim not specifically addressed, above, is being rejected as incorporating the deficiencies of a claim upon which it depends.

The Examiner reads the claims carefully to search for limitations to practical applications and finds no final result achieved or produced a useful, concrete and tangible result. The claimed invention of object classification has no real world function and is not statutory.

CLAIM REJECTIONS - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. §112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-9 are rejected under 35 U.S.C. §112, first paragraph because current case law (and accordingly, the MPEP) require such a rejection if a §101 rejection is given because when

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Applicant has not in fact disclosed the practical application for the invention, as a matter of law there is no way Applicant could have disclosed *how* to practice the *undisclosed* practical application. This is how the MPEP puts it:

("The how to use prong of section 112 **incorporates as a matter of law** the requirement of 35 U.S.C. §101 that the specification disclose as a matter of fact a practical utility for the invention.... If the application fails as a matter of fact to satisfy 35 U.S.C. §101, then the application also fails as a matter of law to enable one of ordinary skill in the art to use the invention under 35 U.S.C. §112."); In re Kirk, 376 F.2d 936, 942, 153 USPQ 48, 53 (CCPA 1967) ("Necessarily, compliance with § 112 requires a description of how to use presently useful inventions, **otherwise an applicant would anomalously be required to teach how to use a useless invention.**") See, MPEP 2107.01(IV), quoting In re Kirk (emphasis added).

Therefore, claims 1-9 are rejected on this basis. Since the claimed invention fails to satisfy 35 U.S.C § 112, first paragraph, there is no reduction to practice.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims **1, 5, and 9** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 5, and 9 recite the limitation: "formulating a query to identify objects having properties of interest." Because the instant disclosure fails to specify the mechanism or modules to perform the claimed limitation, as such, the instant specification is not in such a way as to

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reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Applicants are respectfully requested to point out exactly where in the disclosure the support is found for an opposite view.

CLAIM REJECTIONS - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by "Classification to Ordinal Categories Using a Search Partition Methodology with An Application in Diabetes Screening", by Roger J. Marshall, Statistics In Medicine, 1999, hereafter Marshall.

Claim 1

Marshall teaches a system for classifying objects, the system comprising:

an arrangement for formulating a query to identify objects having properties of interest (page 2724, paragraph 2);

an arrangement for selecting properties of the objects to compare with object properties included in the query (pages 2724-2726, paragraph 3); and

an arrangement for determining if based on the selected properties if object belongs in the query (pages 2724-2726, paragraph 3); and

wherein the formulation of the query takes into account the desired form of output and the properties an object returned should possess (page 2724, paragraph 2, lines 15-32).

Claim 2

The system of claim 1, wherein the selection of properties of objects to compare with object properties included in the query is made determined in conjunction with a determination of the boolean expression of the properties (page 2727, paragraph 4.2).

Claim 3

The system of claim 2, wherein the boolean expression is an optimized expression of the expression that best defines the query (page 2728, paragraph 5.1).

Claim 4

The system of claim 3, wherein the optimization of the boolean express is accomplished by minimizing the error of the expression which defines the query (page 2729, paragraph 5.1).

Claims 5-8

This is a method version of the claimed system discussed above, in claims 1-4, wherein all claimed limitations have also been addressed and cited as set forth above.

Claim 9

This is a computer program product version of the claimed system discussed above in claim 1, wherein all claimed limitations have also been addressed and cited as set forth above.

RESPONSE TO ARGUMENTS

Applicants' arguments filed have been fully considered but they are not persuasive.

Specifically, applicants argue:

1. **Rejection under 35 U.S.C. §101 and rejection under 35 U.S.C. § 112, first paragraph**

Argument 1

A review of the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility", however, shows this rejection is inappropriate. As stated therein,

In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result achieved by the claimed invention is "useful, tangible and concrete."

The present case, the Office appears to have improperly focused on the individual claim elements, not on the claim as a whole.

In response, the Examiner disagrees. Here is how MPEP 2106 II. A. puts it:

A. Identify and Understand Any Utility and/or Practical Application Asserted for the Invention

The claimed invention **as a whole** must be useful and accomplish a practical application. **That is, it must produce a "useful, concrete and tangible result."** State Street, 149 F.3d at *1373-74<, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96 ** (1966); In re Fisher, 421 F.3d 1365, 76 USPQ2d 1225 (Fed. Cir. 2005); In re Ziegler, 992 F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)) (emphasis added).

The Examiner has focused on the claim as a whole when reading the claims to search for limitations to practical applications and finds no final result achieved or produced a useful, concrete and tangible result. In Examiner's opinion, the claims are devoid of statutory matter and Applicants have presented no statutory matter to change this assessment. Accordingly,

Applicants have failed to carry their burden of showing how the claims are statutory. On this basis, Examiner finds Applicants' argument to be unpersuasive and the rejections STAND.

Argument 2

Moreover, the Interim Guidelines also quote *Corning v. Burden*, 56 U.S. (15 How.) 252, 268 (1854) for the proposition that "[i]t is for the discovery or invention of some practical method or means of producing a beneficial result or effect, that a patent is granted .. ". At a minimum, Applicants respectfully submit that each independent claim produces "a beneficial result or effect" (i.e., a method that allows for the effective classification of data objects). It is submitted the claims of the present application produce a result at least as beneficial as the result produced in the claims of U.S. Patent No. 7,133,856 which issued on November 7, 2006 (David Vincent, Primary Examiner; Mai T. Tran, Examiner) (See Claim 1, "[a] method of classifying subjects into classes"). Thus reconsideration and withdrawal of this *rejection* is respectfully requested. In the unlikely event this rejection is not withdrawn, further clarification is respectfully requested. See Interim Guidelines ("Whenever practicable, USPTO personnel should indicate how rejections may be overcome and how problems may be resolved.").

Examiner is not permitted to comment on allowed patents. On a general point, Examiner will say that allowed patents are not court cases and, therefore, do not have any stare decisis value. Further, regardless of what a patent says, it cannot be read to permit anything outside the scope of what The Federal Circuit, The Supreme Court, and Congress permit. Examiners do not make statutes or case law...neither do Applicants. It is our job to obey the law as it is written. Applicants' argument merely depends on what they perceive caused the allowance of other patents and is, thereby, unpersuasive.

In response to Applicants' request that "in the event this rejection is not withdrawn, further clarification is respectfully requested", Examiner would like to remind Applicants that MPEP 2106 IV. A. says "*one may not patent every "substantial practical application" of an idea, law of nature or natural phenomena because such a patent would "in practical effect be a*

patent on the [idea, law of nature or natural phenomena] itself.” Gottschalk v. Benson, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).” As regard a “practical application”, the disclosure broadly suggests, “The present invention may be applied to any number of applications, **non-limiting** examples of which are set forth in the Appendix hereto”. Examiner is not able to divide Applicants’ intention of what invention Applicants would like to patent? Or is it Applicants’ intention to patent the underlying algorithm itself that is a common denominator in the myriad of applications listed in the Appendix.

Accordingly, Examiner finds Applicants’ argument to be unpersuasive and the rejections of the claims STAND.

2. **Rejection under 35 U.S.C. §102**

Argument 3

Marshall does not discuss or disclose optimization of the boolean expression which defines the query. Rather, Marshall discusses binary partitions of ordinal data, and the nesting of those partitions. Further, there is no minimization of the error of the expression, let alone analysis of such error.

During patent examination, the claims are given the broadest reasonable interpretation consistent with the specification. See *In re Morris*, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997). The Examiner disagrees with the above argument. Marshall does teach optimization of the Boolean expression, which defines the query. Marshall teaches that partitions are formed by Boolean expressions (page 2727, paragraph 4.2), and Marshal also teaches the optimal partition (page 2728, paragraph 5.1). Therefore, Marshall teaches optimization of the Boolean expression. Marshall also teaches minimization of the error of the expression. On page 2729, in the description of Table I, the Examiner asserts “false positive and false negative costs” as the error

of the expression. In the middle of page 2729, the Examiner asserts, "that decreases the number of false negatives ..." as minimization of the error of the expression.

Argument 4

The most immediate failure of the prior art in teaching the invention as claimed is the failure of Marshall to teach a "identifying properties of objects" and "formulating a query to identify objects having properties of interest" which goes to the heart of the present invention. In the outstanding Office Action, the Examiner asserts that the rules (1) and (2) on page 2724 of Marshall are queries, the symbols F, T, U, and H are properties of interest, and the set formed by those properties of interest are objects. It is respectfully submitted that a crucial part of the instant invention relates to formulating a query to identify objects having properties of interest. There is no teaching or suggestion in Marshall as to how the query was formulated. Rather, Marshall compares all of the boolean combinations of the data to find a binary partition of the data. This is in no way comparable or suggestive of formulating a query to identify objects having properties of interest.

The Examiner disagrees. Marshall does teach, "formulating a query to identify objects having properties of interest" (page 2724, paragraph 2, e.g. "derived rule that was developed for discrimination between diabetes and the combined normal and impaired states was"). The Examiner asserts "*derived rule that was developed*" is formulating, the rule (1) and (2) are queries, which are Boolean expressions, the symbols F, T, and U are properties of interest, and the set formed by these properties of interest are objects.

Argument 5

To this extent, Marshall definitely fails to teach formulating the query, "wherein . the formulation of the query takes into account the desired form of output and the properties an object returned should possess". As mentioned above, there is no direct teaching or suggestion of Marshall formulating any type of *query*. A formulation that takes into account the desired *form* of output and the properties an *object* returned should possess is definitely not taught or suggested by Marshall. Even if one were to take into account the rules that the Examiner asserts are equivalent to the queries, the formulation of those rules have not been shown in the cited art. Additionally, there is no teaching or suggestion, that

those rules take into account the desired form of output, or may change or manipulate the input to return more than one type of output. Specifically, the rules necessarily yield a **binary form of output**, wherein **the objects are either classified into one** group or another. There is no **suggestion** or teaching that more than one form of output could be yielded, and further no teaching that the formulation of those rules would take into account the form of output and manipulate the rules to yield that type of output. Thus, Marshall does **not in any way anticipate formulating a query**, wherein the formulation of the **query** takes into **account the desired form of output** and the properties an object that it **returns should possess**.

In response, Examiner disagrees. Marshall teaches, “wherein the formulation of the query takes into account the desired form of output and the properties an object returned should possess” (page 2724, paragraph 2, lines 15-32).

In response to Applicants’ assertion “*there is no teaching or suggestion, that those rules may change or manipulate the input to return more than one type of output. Specifically, the rules necessarily yield a binary form of output, wherein the objects are either classified into one group or another. There is no suggestion or teaching that more than one form of output could be yielded, and further no teaching that the formulation of those rules would manipulate the rules to yield that type of output*”, there is no mention of these limitations in the claims and the specification is not the measure of the invention. Therefore, limitations contained therein cannot be read into the claims for the purpose of avoiding the prior art; see In re Sprock, 55 CCPA 743, 386 F.2d 924, 155 USPQ 687 (1968).

Argument 6

Regarding the rejection of independent claims 1, 5, and 9 the Examiner cites the SPAN approach to classification, using a binary approach to classify ordinal data. This is in stark contrast the independent invention, which has no such limitations as to type of data or to a binary approach. Specifically, the independent invention states a method of “identifying properties of objects, formulating a query to identify objects having properties of interest, selecting properties of the objects to compare with object properties included in the query,

and determining if based on the selected properties if the object belongs in the query, wherein the formulation of the query takes into account the desired form of output and the properties an object returned should possess.”

In response to the above argument that “the invention has no such limitations as to type of data or to a binary approach.” Since the term “objects” (i.e. abstract data in the claimed invention) was not further defined in the claims, the applied art still reads on it.

There is no mention of these limitations in the claims and the specification is not the measure of the invention. Therefore, limitations contained therein can not be read into the claims for the purpose of avoiding the prior art; see In re Sprock, 55 CCPA 743, 386 F.2d 924, 155 USPQ 687 (1968).

Marshall does teach, “formulating a query to identify objects having properties of interest” (page 2724, paragraph 2, e.g. “derived rule that was developed for discrimination between diabetes and the combined normal and impaired states was”). The Examiner asserts “*derived rule that was developed*” is formulating, the rule (1) and (2) are queries, which are Boolean expressions, the symbols F, T, and U are properties of interest, and the set formed by these properties of interest are objects. Marshall teaches, “wherein the formulation of the query takes into account the desired form of output and the properties an object returned should possess” (page 2724, paragraph 2, lines 15-32).

CONCLUSION

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

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1. Cohen, William W., U. S. Patent No. 5,719,692 discloses rule induction on large noisy data sets.
2. Celis et al, U. S. Patent No. 5,819,255 discloses system and method for database query optimization.
3. Paulley et al, U. S. Patent No. 6,665,664 discloses prime implicates and query optimization in relational databases.
4. Anonsen, Steven P., U. S. Patent No. 7,096,216 discloses performing operations on a set of objects in a database system.
5. Ganesan et al, U. S. Patent No. 7,120,623 discloses optimizing multi-predicate selections on a relation using indexes.
6. Anonsen et al, U. S. Patent No. 7,162,469 discloses querying an object for properties.

CORRESPONDENCE INFORMATION


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mai T. Tran whose telephone number is (571) 272-4238. The examiner can normally be reached on 10:00 am - 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Vincent can be reached on (571) 272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M.T.T
Patent Examiner


David Vincent
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